

Attorney Dkt: 839-377  
Runkle, Mark A. et al.  
Serial No.: 08/550,941  
Group Art Unit: 2111

3. Again request consideration and official citation of the previously submitted General Electric Company publication entitled "Inductrol Voltage Regulators", and supply an additional PTO-1449 for this purpose.
4. Respectfully traverse all prior art rejections.

**B. CONSIDERATION OF REQUESTED PRIOR ART**

The Examiner previously declined to officially cite the previously submitted General Electric Company publication entitled "Inductrol Voltage Regulators", indicating that no date had been supplied. Applicants have determined that the date for the publication is June 10, 1974, and accordingly have attached additional PTO-1449 which includes the date. In view of prior submission of the publication, an additional copy is not submitted at this time, nor is a fee deemed necessary. If the Patent Office disagrees regarding the fee, please see the Miscellaneous portion of these Remarks appearing at the end of the Amendment.

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**C. THE DOUBLE PATENTING REJECTION IS MOOT**

Applicants advise the Examiner of the express abandonment of parent application serial number 08/426,201. A copy of the Notice of Express Abandonment is attached; the original was filed in the parent application. Abandonment of the parent application moots all double patenting rejections.

**D. THE AMENDMENTS TO THE CLAIMS**

All independent claims have been amended explicitly to state that the rotor of the rotary transformer is connected to one electrical system while the stator of the rotary transformer is connected to another electrical system. The amendments involve including certain limitations from claim 6 in claims 1, 25, and 27, and including certain limitations from claim 17 in claim 15. No new matter is added.

**E. THE PATENTABILITY OF THE CLAIMS**

Claims 1 - 28 stand rejected under 35 USC §102(b) as being clearly anticipated by either Sachs (4,517,471) or Stanton et al (4,179,729). All prior art rejections are respectfully

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traversed for at least the following reasons.

All independent claims 1, 15, 25, and 27 require a rotary transformer. Of these, independent claims 1, 15, and 27 require adjustment of an angular position of the rotary transformer (e.g., so that a predetermined power is transferred from a first electrical system to a second electrical system); independent claim 25 requires a closed loop angular positioning control system which operates the rotary transformer for transferring power from the first electrical system to the second electrical system.

None of the foregoing claim limitations are taught or suggested by the applied references. As explained below, neither applied reference discloses nor suggests, e.g., a rotary transformer.

Sachs (4,517,471) cannot be construed to disclose a rotary transformer, e.g., in view of its winding arrangement. A rotary transformer must have a gap between two windings. In

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contrast, Sachs has two fully-rated windings 22 and 24 (primary winding 22 and secondary winding 24), both of which are mounted on the stator. The absence of a fully-rated winding on rotor 27<sup>1</sup> clearly demonstrates that Sachs is not a rotary transformer, as does the fact that is no gap between Sachs' primary winding 22 and secondary winding 24.

In contrast to Sachs, Applicants place the secondary winding on the rotor and form a rotary transformer. Such placement permits an exchange of electrical energy when the two AC systems<sup>2</sup> have different frequencies or angle with respect to each other. In Sachs, the exchange is limited to situations where the two AC systems are at exactly the same frequency and with a fixed angle with respect to each other. Additionally, Sachs provides no means for affecting power flow between two

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<sup>1</sup> Sachs does have damper and excitation windings on rotor 27 just like any motor or generator, but these windings are not used as fully-rated windings for power exchange.

<sup>2</sup> The first AC system is connected to the primary winding and the second AC system is connected to the secondary winding.

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windings.

Thus, not only does Sachs not have a rotary transformer, but Sachs must have a fixed angle and accordingly cannot teach Applicants' claim limitation of adjustment of an angular position of the rotary transformer.

Stanton et al (4,179,729) likewise does not disclose or suggest a rotary transformer. Stanton has two field windings 14, 16 connected to motor generator 12. A rotary transformer does not have field windings nor a motor generator.

The primary purpose of Stanton's field windings 14, 16 is to regulate the magnitude and phase of the armature voltage by affecting the flux in the machine air gap which rotates at the primary speed of the flux which creates armature voltage. In Applicants' system, on the other hand, the rotor winding is directly connected to the second AC system and there are no such auxiliary field windings. Rather, Applicants apply torque control mechanically via the rotor. Instead of using windings to

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affect the primary flux as required by Stanton, Applicants deliberately choose a number of poles different from that in the main field to minimize interaction with the primary flux.

Stanton's overall purpose is conversion of mechanical energy in a flywheel or prime mover (which rotates at variable speed) to an electrical system of constant frequency. In Applicants' system, in contrast, electrical energy is converted from one frequency to another frequency, and the mechanical energy in rotation is small or (in some instances) even zero.

Applicants take this opportunity to address two other references not applied but cited by the Examiner -- Hartwig et al (4,489,261)<sup>3</sup> and Soeda (4,804,900). Hartwig does not have a rotary transformer, only a motor. Moreover, is not connected to two electrical systems. Hartwig has only a primary winding; there is no secondary winding.

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<sup>3</sup> Hartwig was applied by the Examiner in a prior art rejection in the parent application.

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Soeda has a rotary transformer 10, but does not have Applicants' claimed controller which controls the position of the rotary transformer. Nor is there any adjustment of an angular position of Soeda's rotary transformer so that a predetermined power is transferred from a first electrical system to a second electrical system. Soeda's rotary transformer 10 just goes along for the ride, so to speak. That is, Soeda's rotary transformer 10 is totally at the mercy of Soeda's motor, and merely serves the function of a brushless exciter. Soeda is essentially trying to transfer power through the air gap. Soeda makes no effort at all to control the angle of the rotary transformer. As such, Soeda cannot teach or suggest Applicants' claim limitation of controlling or adjusting an angular position of the rotary transformer so that a predetermined power is transferred from the first electrical system to the second electrical system.

In view of the foregoing and other considerations, the Examiner has ample basis for withdrawing all prior art rejections and allowing all pending claims. A formal written indication of allowability is earnestly solicited.

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**F. MISCELLANEOUS**

The Commissioner is authorized to charge the undersigned's deposit account no. 14-1140 in whatever amount is necessary for entry of this Amendment and the continued pendency of the captioned application, including but not limited to any necessary additional claims fees and extension of time fees.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,  
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